

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

- 5



10

25

- substituents on the aromatic amino acid are independently selected from one or more of halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl, amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

- R₁ is selected from amino, C₁-C₈ alkylamino, C₁-C₈ dialkylamino, arylamino, arC₁-C₈ alkylamino, C₃-C₈ cycloalkylamino, heteroalkylC₁-C₈ alkylamino, heteroalkylC₁-C₈ alkyl-N-methylamino, C₁-C₈ dialkylaminoC₁-C₈ alkylamino, -N(C₁-C₈alkyl)-C₁-C₈ alkyl-N(C₁-C₈alkyl)₂, N(C₁-C₈ alkyl)(C₁-C₈ alkenyl), -N(C₁-C₈alkyl)(C₃-C₈cycloalkyl), heteroalkyl or substituted heteroalkyl wherein the substituent on the heteroalkyl is selected from oxo, amino, C₁-C₈ alkoxyC₁-C₈ alkyl, C₁-C₈ alkylamino or C₁-C₈ dialkylamino;

- R₂ is selected from hydrogen, halogen, C₁-C₈ alkyl, C₃-C₈ cycloalkyl, C₁-C₈ alkenyl, C₁-C₈ alkynyl, arC₁-C₈ alkyl, aryl or heteroaryl;

- R₃ and R₄ are each independently selected from hydrogen, C₁-C₈ alkyl, C₃-C₈ cycloalkyl, C₃-C₈ cycloalkylC₁-C₈ alkyl, aryl, heteroalkyl, substituted heteroalkyl (wherein the substituent on the heteroalkyl is one or more substituents independently selected from C₁-C₈ alkoxycarbonyl, C₁-C₈ alkyl, or C₁-C₄ alkylcarbonyl), heteroalkylC₁-C₈ alkyl, indanyl, acetamidinoC₁-C₈ alkyl, aminoC₁-C₈ alkyl, C₁-C₈ alkylaminoC₁-C₈ alkyl, C₁-C₈ dialkylaminoC₁-C₈ alkyl, unsubstituted or substituted heteroarylC₁-C₈ alkyl, or unsubstituted or substituted arC₁-C₈ alkyl, wherein the substituent on the aralkyl or heteroarylalkyl group is one or more substituents independently selected from halogen, nitro, amino, C₁-C₈ alkyl, C₁-C₈ alkoxy, hydroxy, cyano, C₁-C₄ alkylcarbonyl, C₁-C₈ alkoxycarbonyl, hydroxyC₁-C₈ alkyl or aminosulfonyl; or

- R₃ and R₄, together with the nitrogen to which they are attached, alternatively form an unsubstituted or substituted heteroalkyl group selected from piperidinyl, piperazinyl, morpholinyl or pyrrolidinyl, wherein the substituent

is one or more substituents independently selected from C₁-C₈ alkyl, C₁-C₈ alkoxy, carbonyl or C₁-C₄ alkylcarbonyl;

5 R₅ is selected from unsubstituted or substituted aryl, arC₁-C₈ alkyl, C₃-C₈ cycloalkyl, or heteroaryl, where the substituents on the aryl, arC₁-C₈ alkyl, cycloalkyl or heteroaryl group are independently selected from one or more of halogen, nitro, amino, cyano, hydroxyalkyl, C₁-C₈ alkyl, C₁-C₈ alkoxy, hydroxy, C₁-C₄ alkylcarbonyl, C₁-C₈ alkoxy, carbonyl, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy or C₁-C₄ alkylsulfonyl;

10

R₆ is selected from hydrogen or C₁-C₈ alkyl,

X is oxygen or sulfur;

15

m is an integer selected from 0, 1, 2 or 3;

n is an integer selected from 1 or 2; and

p is an integer selected from 0 or 1;

and pharmaceutically acceptable salts thereof.

20

2. The compound of Claim 1, wherein:

A₁ and A₂ are each independently an L-amino acid selected from the group consisting of alanine, β-alanine, arginine, homoarginine, 25 cyclohexylalanine, citrulline, cysteine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), 2,4-diaminobutyric acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), 2,3-diaminopropionic acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), glutamine, glycine, indanylglycine lysine (optionally substituted with acyl, C₁-C₄ alkyl, 30 aroyl, MeC(NH)-), valine, methionine, proline, serine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), homoserine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), tetrahydroisoquinoline-3-COOH, threonine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), ornithine

(optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), and an unsubstituted or substituted aromatic amino acid selected from the group consisting of phenylalanine, heteroarylalanine, naphthylalanine, homophenylalanine, histidine, tryptophan, tyrosine, arylglycine, heteroarylglycine, aryl-β-alanine, and heteroaryl-β-alanine wherein the substituents on the aromatic amino acid are independently selected from one or more of halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl, amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

R₁ is selected from amino, C₁-C₆ alkylamino, C₁-C₆ dialkylamino, arylamino, arC₁-C₆ alkylamino, heteroalkylC₁-C₆ alkylamino, -N(C₁-C₆ alkyl)-C₁-C₆ alkyl-N(C₁-C₆ alkyl)₂, heteroalkyl or substituted heteroalkyl wherein the substituent on the heteroalkyl is selected from oxo, amino, C₁-C₆ alkoxy C₁-C₆ alkyl, C₁-C₆ alkylamino or C₁-C₆ dialkylamino;

R₂ is selected from hydrogen, halogen or phenyl;

R₃ is selected from hydrogen or C₁-C₆ alkyl;

R₄ is selected from C₁-C₈ alkyl, C₃-C₆ cycloalkyl, C₃-C₆ cycloalkylC₁-C₆ alkyl, aryl, heteroarylC₁-C₆ alkyl, substituted heteroarylC₁-C₆ alkyl wherein the substituent is C₁-C₄ alkyl, heteroalkyl, heteroalkylC₁-C₆ alkyl, indanyl, acetamidinoC₁-C₆ alkyl, aminoC₁-C₆ alkyl, C₁-C₆ alkylaminoC₁-C₆ alkyl, C₁-C₆ dialkylaminoC₁-C₆ alkyl, arC₁-C₈ alkyl, substituted arC₁-C₈ alkyl wherein the substituent on the aralkyl group is one to five substituents independently selected from halogen, nitro, amino, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ alkoxycarbonyl, hydroxyalkyl or aminosulfonyl; or

R₃ and R₄, together with the nitrogen to which they are attached, alternatively form an unsubstituted or substituted heteroalkyl group selected

from piperidinyl, piperazinyl or pyrrolidinyl, wherein the substituent is independently one or two substituents selected from C₁-C₆ alkyl;

5 R₅ is selected from unsubstituted or substituted aryl, arC₁-C₆ alkyl, C₃-C₆ cycloalkyl or heteroaryl, where the substituents on the aryl, aralkyl, cycloalkyl or heteroaryl group are independently selected from one to three substituents selected from halogen, cyano, C₁-C₄ alkyl, C₁-C₄ alkoxy, C₁-C₄ alkoxycarbonyl, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy or C₁-C₄ alkylsulfonyl;

10 R₆ is hydrogen; and

X is oxygen; and

p is 1;

15

and pharmaceutically acceptable salts thereof.

3. The compound of Claim 2, wherein:

20 A₁ is an L-amino acid selected from the group consisting of alanine, arginine, cyclohexylalanine, glycine, proline, tetrahydroisoquinoline-3-COOH, and an unsubstituted or substituted aromatic amino acid selected from the group consisting of phenylalanine, naphthylalanine, homophenylalanine, and O-methyl tyrosine, wherein the substituents on the aromatic amino acid are
25 independently one to five substituents selected from halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl, amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

30

A₂ is an L-amino acid selected from the group consisting of alanine, β-alanine, arginine, citrulline, cysteine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), 2,4-diaminobutyric acid (optionally substituted with acyl,

C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), 2,3- diaminopropionic acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), glutamine, glycine, lysine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), valine, methionine, serine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), homoserine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), threonine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), ornithine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), and an unsubstituted or substituted aromatic amino acid selected from the group consisting of phenylalanine, heteroarylalanine, and histidine, wherein the substituents of the aromatic amino acid are independently one to five substituents selected from halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl, amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

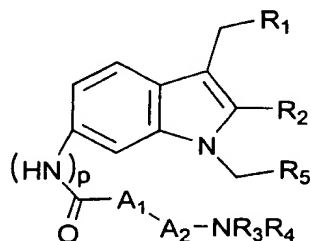
R₂ is selected from hydrogen, chlorine or phenyl;

R₃ is selected from hydrogen or C₁-C₄ alkyl; and

m and n are both 1;

and pharmaceutically acceptable salts thereof.

4. The compound of Claim 3 of the formula:

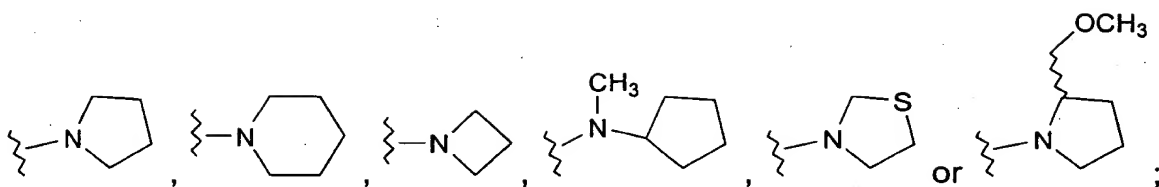


wherein:

A₁ is an L-amino acid selected from the group consisting of alanine, arginine, cyclohexylalanine, proline, tetrahydroisoquinoline-3-COOH, and an unsubstituted or substituted aromatic amino acid selected from the group consisting of phenylalanine, naphthylalanine, homophenylalanine, and O-methyl tyrosine, wherein the substituents on the aromatic amino acid are independently one to two substituents selected from halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl, amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

A₂ is an L-amino acid selected from the group consisting of alanine, β-alanine, arginine, citrulline, cysteine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), 2,4-diaminobutyric acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), 2,3-diaminopropionic acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), glutamine, glycine, lysine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), valine, methionine, serine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), homoserine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), threonine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), ornithine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), and an unsubstituted or substituted aromatic amino acid selected from the group consisting of phenylalanine, heteroarylalanine, and histidine, wherein the substituents on the aromatic amino acid are independently one to two substituents selected from halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl, amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

R₁ is selected from diethylamino, di-(*n*-propyl)amino,



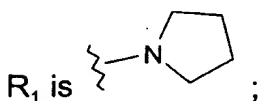
R_3 is selected from hydrogen, methyl or ethyl;

- 5 R_4 is selected from 2-indanyl, phenyl, cyclohexylmethyl, cyclopentyl, pyridylmethyl, furanylmethyl, 2-(4-methyl-furanyl)methyl, thienylmethyl, diphenylmethyl, 4-imidazolylethyl, 2-(4-N-methyl)imidazolylethyl, *n*-octyl, phenyl-*n*-propyl, aminoethyl, aminopropyl, amino-*n*-pentyl, dimethylaminoethyl, 4-aminophenylsulfonylaminomethyl, acetamidineylethyl, 2-N-pyrrolidinylethyl,
- 10 N-ethoxycarbonylpiperidinyl, unsubstituted or substituted phenylethyl and unsubstituted or substituted benzyl wherein the substituents on the phenylethyl or benzyl are independently one or two substituents selected from methyl, fluorine, chlorine, nitro, methoxy, methoxycarbonyl or hydroxymethyl; or
- 15 R_3 and R_4 , together with the nitrogen to which they are attached, alternatively form a heteroalkyl group selected from piperidinyl or 4-(N-methyl)piperazinyl; and

- R_5 is selected from cyclohexyl, 2-naphthyl, phenylethyl, 4-fluorophenylethyl, or unsubstituted or substituted phenyl, where the substituents on the phenyl are independently selected from one to two substituents selected from fluorine, chlorine, iodine, methyl, cyano or trifluoromethyl;
- 20

- 25 and pharmaceutically acceptable salts thereof.

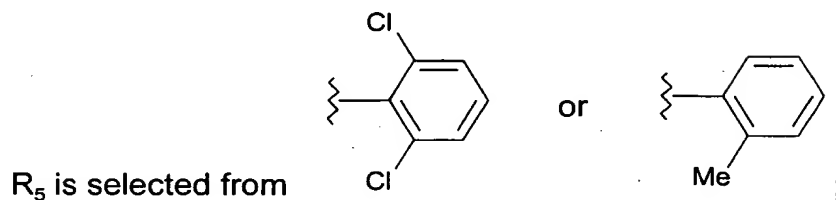
5. The compound of Claim 4, wherein:



and pharmaceutically acceptable salts thereof.

6. The compound of Claim 5, wherein:

5



and pharmaceutically acceptable salts thereof.

10 7. The compound of Claim 6, wherein:

A₁ is selected from 3,4-Difluorophenylalanine or 4-Chlorophenylalanine;

A₂ is selected from 2,4-Diaminobutyric acid or 4-Pyridylalanine;

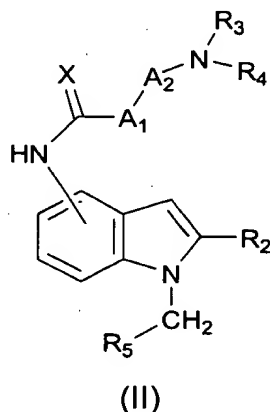
R₃ is hydrogen; and

15 R₄ is selected from benzyl or 2-aminoethyl;

and pharmaceutically acceptable salts thereof.

8. A compound of the formula (II):

20



wherein:

A₁ and A₂ are each independently a D- or L-amino acid selected from the group consisting of alanine, β-alanine, arginine, homoarginine, cyclohexylalanine, citrulline, cysteine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), 2,4-diaminobutyric acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), 2,3-diaminopropionic acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), glutamine, glycine, indanylglycine, lysine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), valine, methionine, proline, serine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), homoserine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), tetrahydroisoquinoline-3-COOH, threonine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), ornithine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), and an unsubstituted or substituted aromatic amino acid selected from the group consisting of phenylalanine, heteroarylalanine, naphthylalanine, homophenylalanine, histidine, tryptophan, tyrosine, arylglycine, heteroarylglycine, aryl-β-alanine, and heteroaryl-β-alanine, wherein the substituents on the aromatic amino acid are independently selected from one or more of halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl, amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

R₂ is selected from hydrogen, halogen, C₁-C₈ alkyl, C₃-C₈ cycloalkyl, C₁-C₈ alkenyl, C₁-C₈ alkynyl, arC₁-C₈ alkyl, aryl or heteroaryl;

25

R₃ and R₄ are each independently selected from hydrogen, C₁-C₈ alkyl, C₃-C₈ cycloalkyl, C₃-C₈ cycloalkylC₁-C₈ alkyl, aryl, heteroalkyl, substituted heteroalkyl (wherein the substituent on the heteroalkyl is one or more substituents independently selected from C₁-C₈ alkoxycarbonyl, C₁-C₈ alkyl, or C₁-C₄ alkylcarbonyl), heteroalkylC₁-C₈ alkyl, indanyl, acetamidinoC₁-C₈ alkyl, aminoC₁-C₈ alkyl, C₁-C₈ alkylaminoC₁-C₈ alkyl, C₁-C₈ dialkylaminoC₁-C₈ alkyl, unsubstituted or substituted heteroarylC₁-C₈ alkyl, or unsubstituted or substituted arC₁-C₈ alkyl, wherein the substituent on the aralkyl or

heteroarylalkyl group is one or more substituents independently selected from halogen, nitro, amino, C₁-C₈ alkyl, C₁-C₈ alkoxy, hydroxy, cyano, C₁-C₄ alkylcarbonyl, C₁-C₈ alkoxy carbonyl, hydroxyC₁-C₈ alkyl or aminosulfonyl; or

- 5 R₃ and R₄, together with the nitrogen to which they are attached, alternatively form an unsubstituted or substituted heteroalkyl group selected from piperidinyl, piperazinyl, morpholinyl or pyrrolidinyl, wherein the substituent is one or more substituents selected from C₁-C₈ alkyl C₁-C₈ alkoxy carbonyl or C₁-C₄ alkylcarbonyl;

10

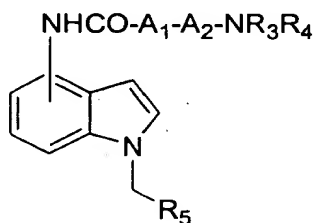
R₅ is selected from unsubstituted or substituted aryl, arC₁-C₈ alkyl, C₃-C₈ cycloalkyl, or heteroaryl, where the substituents on the aryl, arC₁-C₈ alkyl, cycloalkyl or heteroaryl group are independently selected from one or more of halogen, nitro, amino, cyano, hydroxyalkyl, C₁-C₈ alkyl, C₁-C₈ alkoxy, hydroxy, C₁-C₄ alkylcarbonyl, C₁-C₈ alkoxy carbonyl, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy or C₁-C₄ alkylsulfonyl; and,

15

X is oxygen or sulfur; and salts thereof.

20

9. A process for preparing a compound of the formula (III):



(III)

wherein:

25

A₁ and A₂ are each independently a D- or L-amino acid selected from the group consisting of alanine, β-alanine, arginine, homoarginine, cyclohexylalanine, citrulline, cysteine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), 2,4-diaminobutyric acid (optionally substituted with acyl,

C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), 2,3-diaminopropionic acid (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, amidino, or MeC(NH)-), glutamine, glycine, indanylglycine, lysine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), valine, methionine, proline, serine (optionally substituted with

5 C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), homoserine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), tetrahydroisoquinoline-3-COOH, threonine (optionally substituted with C₁-C₄ alkyl, aryl, or arC₁-C₄ alkyl), ornithine (optionally substituted with acyl, C₁-C₄ alkyl, aroyl, MeC(NH)-), and an unsubstituted or substituted aromatic amino acid selected from the group

10 consisting of phenylalanine, heteroarylalanine, naphthylalanine, homophenylalanine, histidine, tryptophan, tyrosine, arylglycine, heteroarylglycine, aryl-β-alanine, and heteroaryl-β-alanine, wherein the substituents on the aromatic amino acid are independently selected from one or more of halogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, hydroxy, C₁-C₄ alkoxycarbonyl,

15 amino, amidino, guanidino, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy, C₁-C₄ alkylsulfonyl, C₁-C₄ alkylcarbonyl, cyano, aryl, heteroaryl, arC₁-C₄ alkyl, C₂-C₄ alkenyl, alkynyl, or nitro;

R₃ and R₄ are each independently selected from hydrogen, C₁-C₈ alkyl,

20 C₃-C₈ cycloalkyl, C₃-C₈ cycloalkylC₁-C₈ alkyl, aryl, heteroalkyl, substituted heteroalkyl (wherein the substituent on the heteroalkyl is one or more substituents independently selected from C₁-C₈ alkoxycarbonyl, C₁-C₈ alkyl, or C₁-C₄ alkylcarbonyl), heteroalkylC₁-C₈ alkyl, indanyl, acetamidinoC₁-C₈ alkyl, aminoC₁-C₈ alkyl, C₁-C₈ alkylaminoC₁-C₈ alkyl, C₁-C₈ dialkylaminoC₁-C₈ alkyl,

25 unsubstituted or substituted heteroarylC₁-C₈ alkyl or unsubstituted or substituted arC₁-C₈ alkyl, wherein the substituent on the aralkyl or heteroarylalkyl group is one or more substituents independently selected from halogen, nitro, amino, C₁-C₈ alkyl, C₁-C₈ alkoxy, hydroxy, cyano, C₁-C₄ alkylcarbonyl, C₁-C₈ alkoxycarbonyl, hydroxyC₁-C₈ alkyl or aminosulfonyl; or

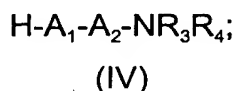
30

R₃ and R₄, together with the nitrogen to which they are attached, alternatively form an unsubstituted or substituted heteroalkyl group selected from piperidinyl, piperazinyl, morpholinyl or pyrrolidinyl, wherein the substituent

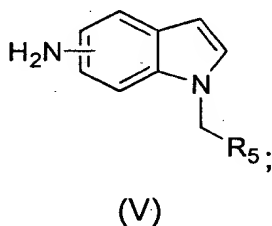
is one or more substituents independently selected from C₁-C₈ alkyl C₁-C₈ alkoxy, carbonyl or C₁-C₄ alkylcarbonyl;

R₅ is selected from unsubstituted or substituted aryl, arC₁-C₈ alkyl, C₃-C₈ cycloalkyl, or heteroaryl, where the substituents on the aryl, arC₁-C₈ alkyl, cycloalkyl or heteroaryl group are independently selected from one or more of halogen, nitro, amino, cyano, hydroxyalkyl, C₁-C₈ alkyl, C₁-C₈ alkoxy, hydroxy, C₁-C₄ alkylcarbonyl, C₁-C₈ alkoxy, carbonyl, fluorinated C₁-C₄ alkyl, fluorinated C₁-C₄ alkoxy or C₁-C₄ alkylsulfonyl;

comprising reacting a compound of the formula (IV):



with a compound of the formula (V):



in the presence of a phosgene equivalent to form the compound of formula (III).

10. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a compound of Claim 1.

11. A pharmaceutical composition made by mixing a compound of Claim 1 and a pharmaceutically acceptable carrier.

12. A process for making a pharmaceutical composition comprising mixing a compound of Claim 1 and a pharmaceutically acceptable carrier.

13. A method of treating a condition selected from the group consisting of thrombosis, restenosis, hypertension, heart failure, arrhythmia, myocardial infarction, glomerulonephritis, reocclusion following thrombolytic
5 therapy, reocclusion following angioplasty, inflammation, angina, stroke, atherosclerosis, ischemic conditions, a vaso-occlusive disorder, neurodegenerative disorders, Angiogenesis related disorders and cancer in a subject in need thereof comprising administering to the subject a therapeutically effective amount of the compound of Claim 1.

10

14. The method of Claim 13, wherein the therapeutically effective amount of the compound is from about 0.1 mg/kg/day to about 300 mg/kg/day.

15. A method of treating a condition selected from the group
15 consisting of thrombosis, restenosis, hypertension, heart failure, arrhythmia, myocardial infarction, glomerulonephritis, reocclusion following thrombolytic therapy, reocclusion following angioplasty, inflammation, angina, stroke, atherosclerosis, ischemic conditions, a vaso-occlusive disorder, neurodegenerative disorders, Angiogenesis related disorders and cancer in a
20 subject in need thereof comprising administering to the subject a therapeutically effective amount of the composition of Claim 10.

16. The method of Claim 15, wherein the therapeutically effective amount of the compound is from about 0.1 mg/kg/day to about 300 mg/kg/day.

25

17. A method of inhibiting platelet aggregation in a subject in need thereof comprising administering to the subject a therapeutically effective amount of the compound of Claim 1.

30 18. The method of Claim 17, wherein the therapeutically effective amount of the compound is from about 0.1 mg/kg/day to about 300 mg/kg/day.

19. A method of inhibiting platelet aggregation in a subject in need thereof comprising administering to the subject a therapeutically effective amount of the composition of Claim 10.

5 20. The method of Claim 19, wherein the therapeutically effective amount of the compound is from about 0.1 mg/kg/day to about 300 mg/kg/day.

21. A method of treating a condition mediated by thrombin receptor (PAR-1) in a subject in need thereof comprising administering to the subject a
10 therapeutically effective amount of the compound of Claim 1.

22. The method of Claim 21, wherein the therapeutically effective amount of the compound is from about 0.1 mg/kg/day to about 300 mg/kg/day.

15 23. A method of treating a condition mediated by thrombin receptor (PAR-1) in a subject in need thereof comprising administering to the subject a therapeutically effective amount of the composition of Claim 10.

24. The method of Claim 23, wherein the therapeutically effective
20 amount of the compound is from about 0.1 mg/kg/day to about 300 mg/kg/day.